

# Warm-Up

## Analyzing Tables



### Lesson Question



### Lesson Goals

Analyze continuous functions represented in .

- Determine a function's .
- Predict intervals of  or negative function values.
- Predict intervals of increasing or  function values.



### Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

<b>continuous graph</b>	a graph in the coordinate plane made up of connected lines or curves with no
<b>input</b>	the _____ value in the domain of a function
<b>output</b>	the _____ value in the range of a function corresponding to a specific input value

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2K

## Words to Know

<b>x-intercept</b>	graphically, a point on a graph at which the graph crosses or touches the <input type="text"/> ; algebraically, an input of a function that results in an output of 0
<b>y-intercept</b>	graphically, a point on a graph at which the graph crosses or ends on the <input type="text"/> ; algebraically, the output of a function when the input is 0

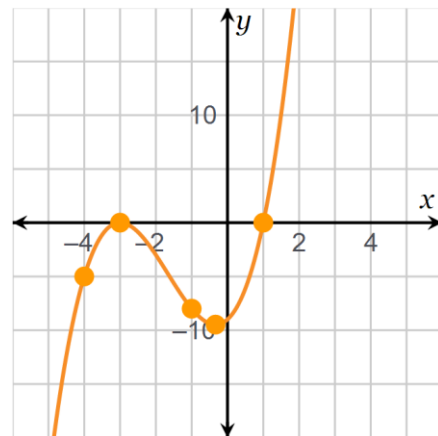


## Analyzing Key Aspects of a Function's Graph

Analyze the **continuous graph** and find some of the key aspects of the function.

**x-intercept(s):** (  ,  ) and  
(  ,  )

**y-intercept:** (  ,  )



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### Analyzing Functions Represented in Tables

#### FINDING THE INTERCEPTS

Consider the function represented by the table.

When the  = 0, the function's graph will have an  $x$ -intercept.

(, ) and (4, 0)

When the **input** = 0, the function will have a

-intercept.

(0, )

$x$	$f(x)$
-4	-32
-2	0
0	-16
2	-32
4	0
6	128

### Analyzing Function Representations

#### DETERMINING POSITIVE AND NEGATIVE INTERVALS

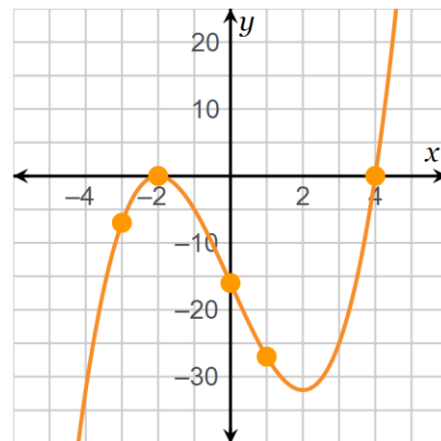
$x$ -intercepts: (-2, 0) and (4, 0)

$y$ -intercept: (0, -16)

Circle the part of the graph that is positive.

$f(x) > 0$   
(, )

$f(x) < 0$   
( $-\infty, -2$ )  $\cup$  (, )



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**Analyzing Projectile Motion**

An object is thrown with an initial velocity of 4 m/s from a height of 100 meters. The table represents the height of the object,  $h(t)$ , after  $t$  seconds.

Analyze the table.

$y$ -intercept: (  ,  )

$x$ -intercept: ?

Somewhere between 4 seconds and

seconds we hit an output of .

$t$	$h(t)$
0	100
1	99.1
2	88.4
3	67.9
4	37.6
5	-2.5

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**Investigating Intervals of Increasing and Decreasing Function Values****ANALYZING THE TABLE**

Analyze the function's table values to determine possible intervals of increasing and decreasing function values.

$f(x)$  is increasing: (  ,  )

$f(x)$  is decreasing: (  ,  )

Potential turning point(s): (  ,  )

$x$	$f(x)$
-4	198
-2	7
0	0
2	21
4	298

## Instruction

## Analyzing Tables

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## GETTING MORE DETAILED

$x$	-4	-3	-2	-1	0	1	2	3	4
$f(x)$	198	54.75	7	-0.75	0	1.75	21	98.25	298

$f(x)$  is increasing: (  ,  )       $f(x)$  is decreasing: (  ,  )

Potential turning point(s): (  ,  )

Although we can't get exact values, this is definitely a better .

By adding even more values, we could even get closer to the exact values for this information on a graph.

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## Predicting End Behavior

Circle the two potential turning points on the table.

$x$	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
$f(x)$	160	81	32	7	0	5	16	27	32	25	0	-49	-128

Use the table to predict possible turning points and the end behavior of the graph.

possible local minimum (  ,  )      as  $x \rightarrow -\infty, f(x) \rightarrow$

possible local maximum (  ,  )      as  $x \rightarrow \infty, f(x) \rightarrow$

## Summary

## Analyzing Tables

?

Lesson  
Question

What can you tell about a functional relationship given in a table?

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## Answer

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## Review: Key Concepts

A table of values represents a function's inputs and outputs.

- can be shown in a table if either column contains a 0 value.
- Tables do not display  the possible points of a function.
- Tables can indicate intervals in the  to be investigated further.

$x$	$f(x)$
-2	-4
-1	0
0	-2
1	-4
2	0
3	16



# Summary

## Analyzing Tables

*Use this space to write any questions or thoughts about this lesson.*